

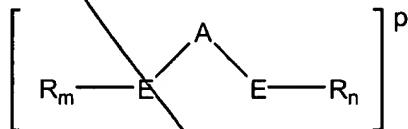
wherein A is a bridging group containing a Group 13-15 element; each E is independently a Group 15 or 16 element bonded to M; each R is independently a C₁-C₃₀ containing radical or diradical group which is a hydrocarbyl, substituted hydrocarbyl, halocarbyl, substituted halocarbyl, hydrocarbyl-substituted organometalloid, halocarbyl-substituted organometalloid, m and n are independently 1 or 2 depending on the valency of E; and p is the charge on the bidentate ligand.

IN THE CLAIMS

1. (Twice Amended) A late transition metal catalyst system for polymerization of olefin monomers comprising a Group 9, 10 or 11 metal complex stabilized by a bidentate ligand immobilized on a solid support where the late transition metal loading is less than 100 micromoles transition metal compound per gram of solid support, the Group 9, 10 or 11 metal complex stabilized by a bidentate ligand of the formula:



wherein M is a Group 9, 10 or 11 metal; L is a bidentate ligand defined by the formula:



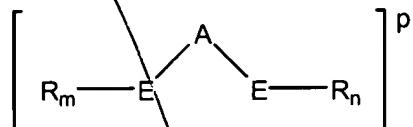
wherein A is a bridging group containing a Group 13-15 element; each E is independently a Group 15 or 16 element bonded to M; each R is independently a C₁-C₃₀ containing radical or diradical group which is a hydrocarbyl, substituted hydrocarbyl, halocarbyl, substituted halocarbyl, hydrocarbyl-substituted organometalloid, halocarbyl-substituted organometalloid, m and n are independently 1 or 2 depending on the valency of E; and p is the charge on the bidentate ligand such that the oxidation state of MX_r is satisfied;

each X is, independently, a hydride radical, a hydrocarbyl radical, a substituted hydrocarbyl radical, a halocarbyl radical, a substituted halocarbyl radical, hydrocarbyl-substituted organometalloid or halocarbyl-substituted organometalloid; or two X's are joined and bound to the metal atom to form a metallacycle ring containing from about 2 to about 20 carbon atoms; a neutral hydrocarbyl-containing donor ligand; a [halogen, an alkoxide, an aryloxide, an amide, a phosphide, or other] univalent anionic ligand; or two X's are joined to form an anionic chelating ligand; or a neutral non-hydrocarbyl atom containing donor ligand; and r is 1, 2 or 3.

6. (Twice Amended) A late transition metal catalyst system for polymerization of olefin monomers comprising a Group 9, 10 or 11 metal complex stabilized by a bidentate ligand, and an organoaluminum compound immobilized on a solid support, the Group 9, 10 or 11 metal complex stabilized by a bidentate ligand of the formula:



wherein M is a Group 9, 10 or 11 metal; L is a bidentate ligand defined by



the formula:

wherein A is a bridging group containing a Group 13-15 element; each E is independently a Group 15 or 16 element bonded to M; each R is independently a C₁-C₃₀ containing radical or diradical group which is a hydrocarbyl, substituted hydrocarbyl, halocarbyl, substituted halocarbyl, hydrocarbyl-substituted organometalloid, halocarbyl-substituted organometalloid, m and n are independently 1 or 2 depending on the valency of E; and p is the charge on the bidentate ligand such that the oxidation state of MX_r is satisfied;

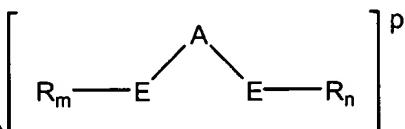
each X is, independently, a hydride radical, a hydrocarbyl radical, a substituted hydrocarbyl radical, a halocarbyl radical, a substituted halocarbyl radical, hydrocarbyl-substituted organometalloid or halocarbyl-substituted organometalloid; or two X's are joined and bound to the metal atom to form a metallacycle ring containing from about 2 to about 20 carbon atoms; a neutral hydrocarbyl-containing donor ligand; a [halogen, an alkoxide, an aryloxide, an amide, a phosphide, or other] univalent anionic ligand; or two X's are joined to form an anionic chelating ligand; or a neutral non-hydrocarbyl atom containing donor ligand; and r is 1, 2 or 3.

13.

(Twice Amended) A late transition metal catalyst system essentially without residual solvent for polymerization of olefin monomers comprising a Group 9, 10 or 11 metal complex stabilized by a bidentate ligand immobilized on a solid support, the Group 9, 10 or 11 metal complex stabilized by a bidentate ligand of the formula:



wherein M is a Group 9, 10 or 11 metal; L is a bidentate ligand defined by



the formula:

wherein A is a bridging group containing a Group 13-15 element; each E is independently a Group 15 or 16 element bonded to M; each R is independently a C₁-C₃₀ containing radical or diradical group which is a hydrocarbyl, substituted hydrocarbyl, halocarbyl, substituted halocarbyl, hydrocarbyl-substituted organometalloid, halocarbyl-substituted organometalloid, m and n are independently

1 or 2 depending on the valency of E; and p is the charge on the bidentate ligand such that the oxidation state of MX_r is satisfied;

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each X is, independently, a hydride radical, a hydrocarbyl radical, a substituted hydrocarbyl radical, a halocarbyl radical, a substituted halocarbyl radical, hydrocarbyl-substituted organometalloid or halocarbyl-substituted organometalloid; or two X's are joined and bound to the metal atom to form a metallacycle ring containing from about 2 to about 20 carbon atoms; a neutral hydrocarbyl-containing donor ligand; a [halogen, an alkoxide, an aryloxide, an amide, a phosphide, or other] univalent anionic ligand; or two X's are joined to form an anionic chelating ligand; or a neutral non-hydrocarbyl atom containing donor ligand; and r is 1, 2 or 3.

17. (Twice Amended) The catalyst system of claim 13 wherein said complex [is] has been treated with a noncoordinating anion precursor to form an ionic catalyst comprising a metal cation and a noncoordinating anion.

19. (Twice Amended) The catalyst system of claim 17 wherein the [ionic catalyst is prepared using an] noncoordinating anion precursor [that] is a halide salt of Group 13-16 metals or metalloids.

20. (Twice Amended) The catalyst system of claim 19 wherein the metal complex to noncoordinating anion precursor molar ratio is from about 10:1 to 1:10.

21. (Twice Amended) The catalyst system of claim 1 wherein said complex [is] has been treated with a noncoordinating anion precursor to form an ionic catalyst comprising a metal cation and a noncoordinating anion.